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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,394	07/16/2003	Mohammad Ali Kalbassi	06295 USA	2928

23543 7590 01/12/2005

AIR PRODUCTS AND CHEMICALS, INC.
PATENT DEPARTMENT
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ALLENTOWN, PA 181951501

EXAMINER

SPITZER, ROBERT H

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/620,394	KALBASSI ET AL.	
	Examiner	Art Unit	
	Robert H. Spitzer	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/16/03, 8/18/03, 2/1/04.</u> | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. The abstract of the disclosure is objected to because of the use of the legal phraseology of "means". Correction is required. See MPEP § 608.01(b).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2,3,5,6,19 and 24-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 3 is indefinite because there is no direct antecedent basis for the recitation of "the undesired component", as there is no previous use of the word "undesired". Claim 5 is indefinite because there is no direct antecedent basis for the recitation of "the undesired components". Claim 19 is indefinite because it recites "having three adsorption zones" without any correlation to the "at least three parallel thermal swing zones" previously recited in claim 1. Claims 3 and 6 are indefinite because they depend from the above indefinite claims. Claim 24 is

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indefinite because there is no direct antecedent basis for the recitation of "the undesired component". Claim 25 is indefinite because there is no direct antecedent basis for the recitation of "the valve means". Claim 26 is indefinite because of its referral to three separate previous claims, which makes the claim hard to follow and understand.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1,3-18 and 20-26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by both the process and adsorption apparatus of Fuderer (5,958,109), wherein the TSA adsorption beds overlap on their adsorption steps, as shown in Fig. 2.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuderer (5,958,109) in view of either Kumar (5,571,309) or Kalbassi et al. (5,614,000) or Kalbassi et al. (5,846,295). The claims differ from the disclosure of Fuderer ('109) in the adsorption process and apparatus being used for the prepurification of feed air to a cryogenic air separation device. Kumar ('309) and either Kalbassi et al. reference ('000) or ('295), show that the feed gas to a cryogenic air separation system can be prepurified by an adsorption process and apparatus. It would have been obvious to one of ordinary

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skill in the art, at the time the invention was made, to utilize the TSA process and apparatus of Fuderer ('109) to prepurify the feed gas to a cryogenic air separation system, in view of the showing of either Kumar ('309) or Kalbassi et al; ('000) or Kalbassi et al. ('295), so that the parts of such cryogenic air separation device that are subjected to cold temperatures will no ice over.

8. The remaining references listed on the PTO-1449 and those cited on the PTO-892 show art of interest.

9. Applicants' response to this Office action should also include the following editorial changes: para. [0009], line 2, "than" should be inserted before "it"; para. [0010], line 1, "TSA TPSA" should be "TSA, TPSA"; para. [0016], line 4, "are typically are" should be either "are typically" or "typically are"; para. [0044], line 1, "out" should be inserted after "carried"; para. [0052], line 7, "a the" should be either "a" or "the"; para. [0058], line 11, "valves" should be "valve"; and, in claim 4, line 1, "absorbent" should be "adsorbent".

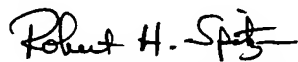
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert H. Spitzer whose telephone number is (571) 272-1167. The examiner can normally be reached on Monday-Thursday from (5:30AM-4:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

January 11, 2005


Robert H. Spitzer
Primary Examiner
Art Unit 1724
January 11, 2005